

We claim:

1. A roll-up closure device typically for use on vehicle shelters of the type defining at a front end thereof a door opening having lateral sides which diverge from top to bottom, comprising a pair of guide means adapted to be mounted to the vehicle shelter substantially at the lateral sides of the door opening and substantially parallel thereto thereby diverging from top to bottom, an overhead roller means adapted to be rotatably mounted inside the vehicle shelter and substantially horizontally adjacent an upper end of the door opening, a flexible closure means adapted to be secured at a top end thereof to said roller means, at least a section of said flexible closure means having a shape which tapers in direction of said roller means and including diverging lateral side edges adapted to be engaged in said guide means, whereby a rotation of said roller means causes said flexible closure means to displace along said guide means and to wind around said roller means or to unwind therefrom for displacing said flexible closure means towards an open or a closed position thereof, respectively, wherein in said closed position, said section of said flexible closure means substantially completely closes the door opening.
2. A closure device as defined in claim 1, wherein said roller means comprise winding means adapted to take up substantially triangular lateral end portions of said section such that when said flexible closure means is in a rolled attitude around said roller means, said flexible closure means defines substantially concentric and cylindrical layers of varying axial width.
3. A closure device as defined in claim 2, wherein said roller means comprise a rotatable shaft with said top end of said flexible closure means being attached thereto, a pair of pulley means mounted at ends of said shaft, cable means being engaged to said pulley means and secured to said flexible closure means such that a rotation of said shaft and pulley means cause said cable means to displace thereby displacing said flexible closure means.
4. A closure device as defined in claim 3, wherein each said pulley means comprise first pulley having an outwardly flaring bottom for receiving said lateral side edges of said flexible closure means in an axially outwardly staggered relationship therearound for maintaining substantially taut said cylindrical layers of said section in said rolled attitude.

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5. A closure device as defined in claim 4, wherein said cable means are connected to said pulley means such as to define closed loops, each said pulley means comprising a second pulley adjacent said first pulley, each said cable means being secured to both said first and second pulley such that a rotation of said pulley means causes said cable means to wind around one of said first and second pulleys and to unwind from another one of said first and second pulleys.

6. A closure device as defined in claim 4, wherein said first pulley is frusto-conical shaped.

7. A closure device as defined in claim 5, wherein a third pulley engaged by said cable means is provided at a lower end of each said guide means, whereby when said flexible closure means is displaced towards said closed position thereof, said flexible closure means and said cable means attached thereto unwind from said first pulleys with said cable means being also wound around said second pulleys while driving said flexible closure means downwardly along said guide means such as to substantially completely close the door opening; whereas when said flexible closure means is displaced towards said open position thereof, said flexible closure means and said cable means attached thereto wind around said first pulleys while upwardly pulling said flexible closure means along said guide means with said cable means being also unwound from said second pulleys.

8. A closure device as defined in claim 5, wherein said second pulleys are slightly angled outwardly towards said guide means for cleanly receiving said cable means therein during rotation of said roller means towards said closed position.

9. A closure device as defined in claim 5, wherein said cable means are each provided with binding means to ensure sufficient tension therein during rotation of said roller means.

10. A closure device as defined in claim 1, wherein said flexible closure means is provided with elastic means extending substantially laterally at least adjacent said side edges to ensure that said flexible closure means remains substantially taut during rotation of said roller means.

11. A closure device as defined in claim 10, wherein said guide means each comprise a tubular member adapted to be mounted to the lateral sides defining the door opening of the vehicle shelter and inwardly defining a longitudinal slot, said lateral side edges of said flexible closure means being engaged in said tubular members and inwardly extending therefrom through said slots, said elastic means maintaining said side edges substantially taut at said slots.

12. A closure device as defined in claim 11, wherein each said guide means comprise sealing means mounted to said tubular member at said slot and at least on one side of said lateral side edges of said flexible closure means.

13. A closure device as defined in claim 1, wherein reversible motor means are provided for driving said roller means.

14. A closure device as defined in claim 1, wherein first detachable fastening means are provided on said flexible closure means inwardly of each said lateral side edge thereof for allowing said flexible closure means to be manually opened in the event that said roller means cannot be rotated or that said flexible closure means is jammed to said guide means.

15. A closure device as defined in claim 14, wherein second detachable fastening means are provided for securing said flexible closure means in an open position when having been manually opened using said first detachable fastening means.

16. A closure device as defined in claim 15, wherein said first detachable fastening means comprise zippers, and wherein said second detachable fastening means comprise strap means.

17. A closure device as defined in claim 1, wherein said flexible closure means extends substantially planarly across the door opening when in said closed position.

18. A closure device as defined in claim 11, wherein said lateral side edges of said flexible closure means are each secured opposite said elastic means to a sliding block means engaged in

said tubular member for ensuring that said flexible closure means can displace along said guide means even with forces applied inwardly on said lateral side edges by said elastic members.

19. A closure device as defined in claim 18, wherein each said sliding block means comprises a pulley engaged by said cable means and mounted at a distance a lower end of said lateral side edge of said flexible closure means being mounted to said lower end of said sliding block means, said lower end of said sliding block means being adapted to extend in said guide means at least close to the ground in said closed position such that a lower edge of said flexible closure means extends at least close to the ground whereby said pulley, being mounted fairly above the ground, and said cable means are not as vulnerable to jamming due to ice built-ups with said sliding block means ensuring that said flexible closure means extends firmly downwards to the ground.

20. A roll-up closure device disposed adjacent a door opening and movable between blocking and unblocking position relative thereto, and comprising:

a roller adapted to be rotatably mountable adjacent an upper end of the door opening;

a curtain adapted to be secured at a top end thereof to the roller whereby rotation of the roller causes the curtain to wind or unwind from the roller to move between unblocking and blocking positions, respectively;

guide members disposed at the lateral sides of the door opening;

guide engagement members couplable to the curtain for movement therewith and engageable with the guide members to restrict their movement toward the curtain center; and

a discrete elastic member coupled to the curtain for movement therewith and extending laterally across the curtain, and disposed such that the elastic member can be stretched between the restricted guide engagement members.

21. The device of claim 20, wherein opposed ends of the elastic member are coupled to the curtain, and the restricted guide engagement members are coupled to the lateral edges of the curtain, an increased lateral separation of the guide engagement members exerting a pulling force on the curtain tending to stretch the elastic member.

22. The device of claim 20, wherein the elastic member can be stretched to allow the curtain to yield to an applied external force without rupturing.

23. The device of claim 20, wherein the guide engagement members are cables extending along the lateral edge of the curtain and received in a pocket formed therein.

24. The device of claim 20, wherein the guide engagement members are blocks coupled to the lateral edges of the curtain at approximately the same height as the elastic member.

25. The device of claim 20, and including a second elastic member coupled to the curtain for movement therewith and extending laterally across the curtain such that the second elastic member can be stretched between the restricted guide engagement members.

26. A roll-up closure device disposed adjacent a door opening and movable between blocking and unblocking position relative thereto, and comprising:

a roller adapted to be rotatably mountable adjacent an upper end of the door opening;

a curtain adapted to be secured at a top end thereof to the roller whereby rotation of the roller causes the curtain to wind or unwind from the roller to move between unblocking and blocking positions, respectively;

guide members disposed at the lateral sides of the door opening; and

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laterally inwardly biasing means for maintaining the curtain taut, and for allowing the curtain to yield depth-wise for an applied force.

27. The device of claim 26, wherein the laterally inward biasing means comprises:
guide engagement members couplable to lateral edges of the curtain for movement therewith and engageable with the guide members to restrict their movement toward the curtain center; and
a discrete elastic member coupled to the curtain for movement therewith and extending laterally across the curtain, and disposed such that the elastic member can be stretched between the restricted guide engagement members.

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